

CORRECTED COPY

**BEFORE THE DEPARTMENT OF
NATURAL RESOURCES AND CONSERVATION
OF THE STATE OF MONTANA**

* * * * *

**APPLICATION TO CHANGE WATER RIGHT)
NO. 41D 30147384 BY PAPAS LEGACY, LLC)
AND MF MANAGEMENT, LLC)**

**PRELIMINARY DETERMINATION TO
GRANT CHANGE**

* * * * *

On February 7, 2020, MF Management, LLC and Papas Legacy, LLC (Applicant) submitted Application to Change Water Right No. 41D 30147384 to change Water Right Claim No. 41D 100950-00 to the Bozeman Regional Office of the Department of Natural Resources and Conservation (Department or DNRC). The Department published receipt of the Application on its website. The Department sent Applicant a deficiency letter under §85-2-302, Montana Code Annotated (MCA), dated July 15, 2020. The Applicant responded with information dated September 4, 2020. The Application was determined to be correct and complete as of August 10, 2022. The Department provided a Draft Preliminary Determination to Grant to the Applicant on November 30, 2022. The Department is currently providing a Corrected Draft Preliminary Determination to Grant to remove a purpose, correct the purpose flow rate, and correct the purpose volume.

The Department met with the Applicant (Deborah Stephenson, consultant) on November 22, 2019. An Environmental Assessment for this Application was completed on November 29, 2022.

INFORMATION

The Department considered the following information submitted by the Applicant, which is contained in the administrative record.

Application as filed:

- Application to Change Water Right, Form 606-IR
- Attachments
 - Exhibit A: MT FWP pond and fishing stocking permits
 - Exhibit B: Water Resource Survey (WRS) for T. 3S R. 6W and T. 4S R. 6W
 - Exhibit C: Historical Imagery (8/28/1960 USGS, 7/26/1972 USGS, 9/7/1979 USDA, 10/24/2017 NAIP)

CORRECTED COPY

- Exhibit D: Photographs of ponds, fish in ponds, big gun sprinkler, inlets/outlets, and pumps
- Maps:
 - Exhibit IR.2.C Historic Irrigation
 - Exhibit IR.2.D Proposed Use
 - Exhibit B WRS Maps for T. 3S R. 6W and T. 4S R. 6W
- Change in Purpose Addendum
- Change in Place of Storage Addendum

Information Received after Application Filed

- Emails between Shannon Baumgardner (DNRC Hydrologist/New Appropriations Specialist), Deborah Stephenson (Consultant), dated between February 2, 2023, and February 8, 2023, re: Applicant preference for use of Davis memo.
- Emails between Shannon Baumgardner (DNRC Hydrologist/New Appropriations Specialist), Gabrielle Ostermayer (DNRC Hydrologist/New Appropriations Specialist), and Kathy Olsen (DNRC Regional Operations Manager), dated between January 11, 2023 and January 13, 2023, re: variable flow rates for offsetting loss of return flows.
- Emails between Shannon Baumgardner (DNRC Hydrologist/New Appropriations Specialist), Deborah Stephenson (Consultant), and Kerri Strasheim (DNRC Bozeman Regional Manager), dated between December 22, 2022, and January 10, 2023, re: mitigation purpose, Davis memo, and need to correct purposes.
- Emails between Shannon Baumgardner (DNRC Hydrologist/New Appropriations Specialist), Gabrielle Ostermayer (DNRC Hydrologist/New Appropriations Specialist), Kerri Strasheim (DNRC Bozeman Regional Manager), dated between December 1, 2022, and December 12, 2022, re: mitigation purpose, Davis memo, and need to correct purposes.
- Email between Shannon Baumgardner (DNRC Hydrologist/New Appropriations Specialist) and Will Moore (Consultant) dated November 28, 2022, re: confirmation irrigation water flows through ponds and no pond storage for irrigation.
- Email between Shannon Baumgardner (DNRC Hydrologist/New Appropriations Specialist) and Deborah Stephenson (Consultant) dated February 14, 2022, re: number of irrigated acres for historical use.

CORRECTED COPY

- Emails between Shannon Baumgardner (DNRC Hydrologist/New Appropriations Specialist) and Gabrielle Ostermayer (DNRC Hydrologist/New Appropriations Specialist), dated between July 20, 2022, and August 4, 2022, re: applicability of Davis return flows memo and whether monthly or annual look at return flows needed.
- Emails between Shannon Baumgardner (DNRC Hydrologist/New Appropriations Specialist), Deborah Stephenson (Consultant), Will Moore (Consultant), and Kerri Strasheim (DNRC Bozeman Regional Manager) dated between May 20, 2022, and July 27, 2022, re: additional information needed for Return Flow Report and confirmation return flows meet 2016 Davis memo requirements for annual timestep.
- Letter from Applicant to DNRC dated September 1, 2020, re: Response to Deficiency Letter for Change Application No. 41D 30147384, received by DNRC on September 4, 2020.

Information within the Department's Possession/Knowledge

- Irrigation Change Application Technical Report dated August 10, 2022.
- Return Flow Report dated June 7, 2022.
- The Department also routinely considers the following information. The following information is not included in the administrative file for this Application but is available upon request. Please contact the Bozeman Regional Office at 406-586-3136 to request copies of the following documents.
 - "Technical Memorandum: Calculating Return Flow" (Levens et al., 2019)
 - "Change in Method of Irrigation – Policy Memo" (Davis, 2015)
 - "Return Flows – Policy Memo" (Davis, 2016)
 - "Development of standardized methodologies to determine Historic Diverted Volume" (Roberts and Heffner, 2012)

The Department has fully reviewed and considered the evidence and argument submitted in this Application and preliminarily determines the following pursuant to the Montana Water Use Act (Title 85, chapter 2, part 3, part 4, MCA).

WATER RIGHT TO BE CHANGED

FINDINGS OF FACT

CORRECTED COPY

1. Applicant seeks to change Statement of Claim No. 41D 100950-00 for 18.75 cubic feet per second (“CFS”) flow and a diverted volume of the amount put to historical and beneficial use from Big Hole River for the purpose of flood irrigation with a priority date of December 31, 1870. The period of use and period of diversion is May 1st to October 19th. The claimed place of use is 243 acres in E2SESE Section 31 Township 3 South Range 6 West, S2NW and SW Section 32 Township 3 South Range 6 West, N2NE and NENW Section 6 Township 4 South Range 6 West, all in Madison County. The point of diversion is a headgate in SWSWNW Section 6 Township 4 South Range 6 West, Madison County. The water right is conveyed by Smith Ditch. The place of use is approximately 3 miles southwest of Twin Bridges near the Big Hole River.

Table 1: WATER RIGHTS PROPOSED FOR CHANGE

W.R. NO.	FLOW RATE	VOLUME	PURPOSE	PERIOD OF USE	PLACE OF USE	POINT(S) OF DIVERSION	PRIORITY DATE
41D 100950 00	18.75 CFS	Historical and beneficial use	Irrigation (243 claimed acres)	5/1-10/19	E2SESE S31, S2NW & SW S32, T3S R6W; N2NE & NENW S6, T4S R6W; Madison Co.	SWSWNW S6 T4S R6W	12/31/1870

2. Ownership in the water right is clear. Both owners of the water right are jointly applying for this change.

3. Four groundwater certificates provide water to ponds in the historic place of use 41D 30105523, 41D 30105526, 41D 30107603, and 41D 30147879. Groundwater certificate, 41D 30107603, will remain after the change to supply Pond 4, which is fed only by groundwater, and 41D 100950 00 will supplement evaporative loss. Groundwater certificate, 41D 30105523, will be withdrawn after this change authorization is granted and the Applicant will submit a Notice of Completion of Groundwater Development for 2.5 AF, which will supply the groundwater component of Pond 1. Groundwater certificates 41D 30105526 and pending 41D 30147879 are for groundwater ponds not connected to the ponds in this change. Each owner has one or more groundwater certificates for domestic and lawn and garden purposes (MF Management 41D

CORRECTED COPY

30107580 and Papas Legacy 41D 30103055/41D 15636 00/pending 41D 30149396). No irrigation statements of claims supplement the water right being changed.

4. Statement of Claim No. 41D 100950 00 has no previous change authorizations.

CHANGE PROPOSAL

FINDINGS OF FACT

5. Applicant proposes to add five places of storage (ponds) with a combined surface area of 3.15 acres to 41D 100950 00 (Figure 1), to retire 16.44 irrigated acres to account for the new consumptive use of the ponds, and to leave 11 acre-feet (“AF”) volume instream at the historical point of diversion to offset the of lost return flows to the Big Hole River. The proposed ponds will be in the historical place of use and will be used for an additional fishery purpose. Water will flow through the ponds for the irrigation purpose; no water will be stored in the proposed ponds for irrigation. The point of diversion and conveyance ditch will remain unchanged and will supply the irrigation purpose and fishery purpose. All proposed irrigated acres will remain in the historic place of use. The retired irrigated acres are along the northern edge of the property, under the five proposed ponds, and to the south of Pond 3. The irrigation purpose will now include portable big gun sprinklers pumping flow-through water from any of the five ponds to irrigate approximately 13 acres adjacent to the ponds. The additional fishery purpose will include 16.56 AF per year to account for the surface water component of the Annual Water Requirement for the five ponds (capacity and net annual evaporation, see Table 2 below). The proposed period of use for the fishery purpose is 1/1–12/31, which is outside the historical period of use for irrigation. The period of diversion for the fishery purpose will remain the same as for irrigation (5/1 – 10/19). The fishery purpose outside the period of diversion will be supported by the ponds.

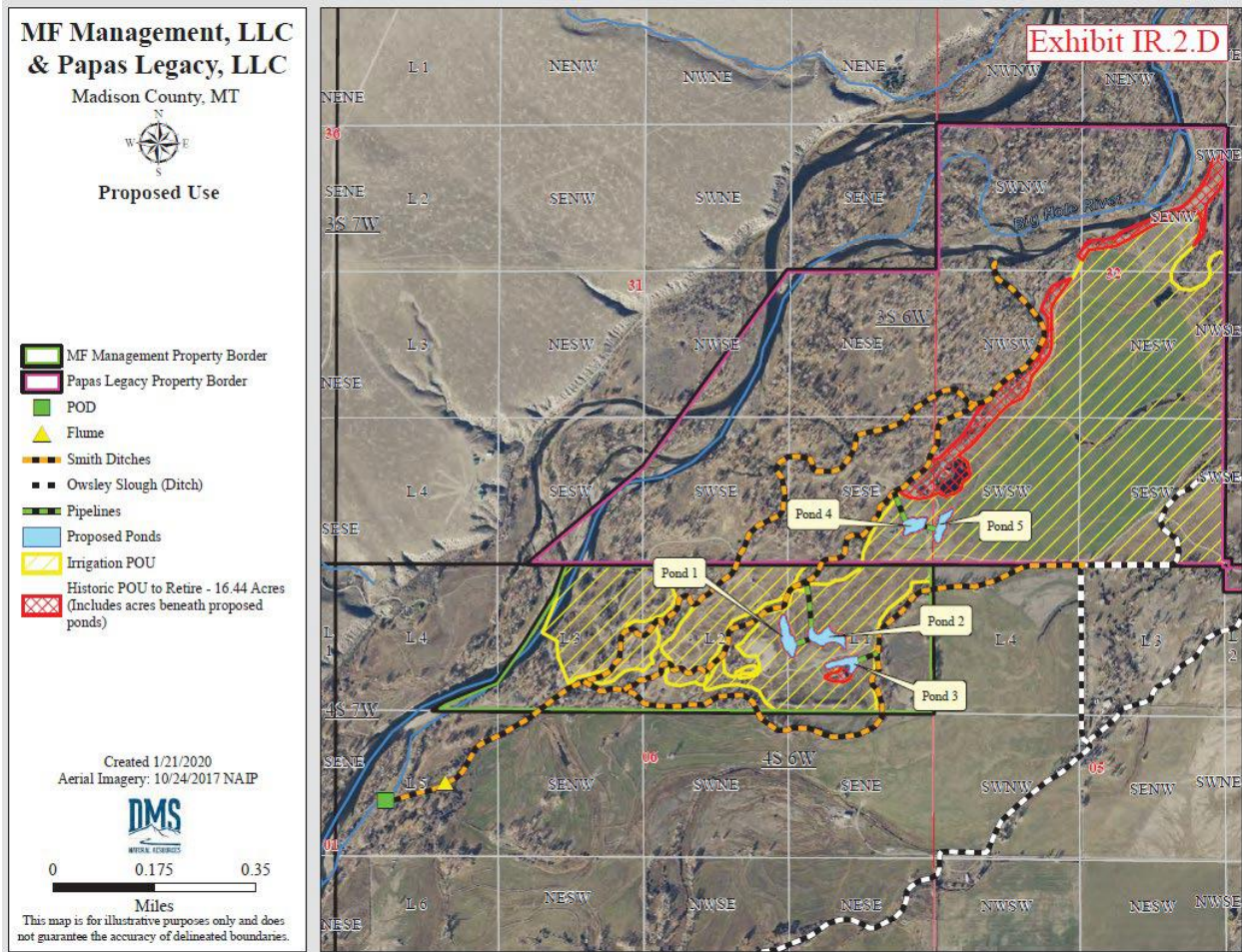


Figure 1. Proposed Use Map (Application, IR.2.D)

6. The new use of the ponds will be provided by a combination of 41D 100950 00 and groundwater certificates. Ponds 1-3 will have a groundwater component of 2.5 AF each, which will be protected by three new groundwater certificates the Applicant plans to submit once the change is complete. Pond 4 is primarily groundwater (41D 30107603), but surface water will provide a redundant supply for net annual evaporation. Pond 5 is entirely surface water so will be fully accounted for in this change. Table 2 shows the ponds' surface water component and legal land descriptions.

CORRECTED COPY

Table 2. Surface Water Component and Legal Land Description of the Ponds

Pond	Surface Area (sq ft)	Depth (ft)	Capacity (AF)	Net Annual Evaporation (AF)	Annual Water Requirement (AF)	Surface Water Component (AF)	Legal Land Description
Pond 1	0.73	12	4.38	1.96	6.34	3.84	N2NE S06 T04S R06W
Pond 2	0.83	12	4.98	2.23	7.21	4.71	W2NENE S06 T04S R06W
Pond 3	0.53	12	3.18	1.42	4.6	2.1	SWNENE S06 T04S R06W
Pond 4	0.55	12	3.3	1.48	4.78	1.48	SESESE S31 T03S R06W
Pond 5	0.51	12	3.06	1.37	4.43	4.43	SWSWSW S32 T03S R06W

7. Applicant has obtained fish stocking permits from Montana Department of Fish Wildlife & Parks (“FWP”) for ponds 1, 3, 4, and 5. Applicant will apply for fish stocking permit from FWP for Pond 2 when this change authorization is granted.

CHANGE CRITERIA

8. The Department is authorized to approve a change if the applicant meets its burden to prove the applicable § 85-2-402, MCA, criteria by a preponderance of the evidence. Matter of Royston, 249 Mont. 425, 429, 816 P.2d 1054, 1057 (1991); Hohenlohe v. DNRC, 2010 MT 203, ¶¶ 33, 35, and 75, 357 Mont. 438, 240 P.3d 628 (an applicant’s burden to prove change criteria by a preponderance of evidence is “more probably than not.”); Town of Manhattan v. DNRC, 2012 MT 81, ¶8, 364 Mont. 450, 276 P.3d 920. Under this Preliminary Determination, the relevant change criteria in §85-2-402(2), MCA, are:

(2) Except as provided in subsections (4) through (6), (15), (16), and (18) and, if applicable, subject to subsection (17), the department shall approve a change in appropriation right if the appropriator proves by a preponderance of evidence that the following criteria are met:

(a) The proposed change in appropriation right will not adversely affect the use of the existing water rights of other persons or other perfected or planned uses or developments for which a permit or certificate has been issued or for which a state water reservation has been issued under part 3.

(b) The proposed means of diversion, construction, and operation of the appropriation works are adequate, except for: (i) a change in appropriation right for instream flow pursuant to 85-2-320 or 85-2-436; (ii) a temporary change in appropriation right for instream flow pursuant to 85-2-408; or (iii) a change in appropriation right pursuant to 85-2-420 for mitigation or marketing for mitigation.

(c) The proposed use of water is a beneficial use.

(d) The applicant has a possessory interest, or the written consent of the person with the possessory interest, in the property where the water is to be put to beneficial use or, if the proposed change involves a point of diversion, conveyance, or place of use on national forest system lands, the applicant has any written

CORRECTED COPY

special use authorization required by federal law to occupy, use, or traverse national forest system lands for the purpose of diversion, impoundment, storage, transportation, withdrawal, use, or distribution of water. This subsection (2)(d) does not apply to: (i) a change in appropriation right for instream flow pursuant to 85-2-320 or 85-2-436; (ii) a temporary change in appropriation right for instream flow pursuant to 85-2-408; or (iii) a change in appropriation right pursuant to 85-2-420 for mitigation or marketing for mitigation.

9. The evaluation of a proposed change in appropriation does not adjudicate the underlying right(s). The Department's change process only addresses the water right holder's ability to make a different use of that existing right. *E.g., Hohenlohe*, at ¶¶ 29-31; *Town of Manhattan*, at ¶8; *In the Matter of Application to Change Appropriation Water Right No.41F-31227 by T-L Irrigation Company* (DNRC Final Order 1991).

10. The application is subject to additional criteria if it involves appropriations in excess of 4000 AF and 5.5 CFS, out-of-state transport/use, instream flow, marketing, or marketing for mitigation. This Application is not subject to additional criteria set forth in §85-2-402 (4), MCA because this change application only involves an appropriation in excess of 5.5 CFS but does not involve an appropriation greater than 4000 AF. The Application is not subject to the higher evidentiary requirement of clear and convincing evidence, pursuant to §85-2-402 (5), because the water consumed by the purposes in the change will be less than 5.5 CFS and 4,000 AF.

HISTORIC USE AND ADVERSE EFFECT

FINDINGS OF FACT - Historic Use

11. Applicant describes historic use with help of Dave Ashcraft, who was a prior owner of and is the current lessee of both properties. As of 1973, water was diverted from Big Hole River with a wood and cast-iron headgate and conveyed to the place of use by several primary branches of the Smith Ditch. The Smith Ditch branches vary greatly in size and resemble a natural stream channel, but on average they are approximately 16.1 feet wide and 1.6 feet deep. The original claim was for 240 irrigated acres, which the Applicant later filed an amendment with the Water Court to change to 243 irrigated acres. The 1965 Water Resources Survey identifies 202 irrigated acres and the Department verified 228-230 acres during reexamination of the water right. The Department found 230 acres reviewing this application for historical use based on aerial photo 5-

CORRECTED COPY

72-552-1772, dated 07/26/1972, and aerial photo 1VELC00020262, dated 09/10/1977 (Application IR.3).

12. No water commissioner is on the source. Water Right No. 41D 100950 00 has never been subject to a call. Water users voluntarily reduce their flow rates to achieve flow targets for fisheries set by the Big Hole Watershed Committee and have done so successfully over last 20 years. The voluntary water reductions have helped prevent Arctic graylings from being listed as endangered species. (Application IR.3)

13. No periods of nonuse exist.

14. The historic consumptive use for this water right was calculated pursuant to ARM 36.12.1902. The water right being changed is a Statement of Claim and as such, the underlying historic use of the water right will be evaluated as it existed as of July 1, 1973.

15. Applicant states that historical flood irrigation practices typically lasted for 172 days, from May to mid-October. The place of use was irrigated for pasture grass and alfalfa hay. Water was applied across all the acres in a rotation and there were no breaks for haying. The Applicant described the historical conveyance system as flood irrigation using contour ditches with a slope of approximately 2% and did not describe leveling or grading of fields before July 1, 1973. (Application IR.3). The place of use is in Twin Bridges, approximately 3 miles southwest of downtown. The nearest and most representative weather station is in Twin Bridges, located at 4777 ft elevation. Evapotranspiration for Madison County at Twin Bridges is 16.98 inches annually. The 1964-1973 Management Factor for Madison County is 65.2%. The on-farm efficiency of 55% was selected assuming flood irrigation with contour ditches and a slope of 1.5-3%.

16. The following table summarizes the historic consumptive volume calculation (Table 3).

Table 3. Historic Consumptive Volume

Historic Consumptive Volume (HCV) Flood Sprinkler	Madison County, Twin Bridges Flood/Wheeline/ Handline ET (Inches)	Madison County 1964-1973 Management Factor (Percent)	Historic Acres	HCV AF (minus IL)	On-farm Efficiency	Field Application AF	Historic Irrecoverable Losses (IL) Flood 5%:	HCV AF (Including IL)
41D 100950 00	16.98	65.2%	230	212.2	55%	385.9	19.3	231.5

CORRECTED COPY

17. The Department calculated historic diverted volume pursuant to ARM 36.12.1902(10) and the Department's standard methodology (Roberts and Heffner, 2012). Total historic diverted volume is equal to water applied to field plus seasonal conveyance losses. Historic diverted volume was determined using the Applicant's explanation of irrigation operations and the best available information regarding the Smith Ditches. No other irrigators are on the Smith Ditch used by the Applicant¹. The Applicant owns a year-round stock right, 41D 100948 00, for livestock drinking direct from the Smith Ditch. This water right has no flow rate assigned and will not be included in the conveyance loss calculations. All conveyance losses associated with water being conveyed from the point of diversion to place of use are assigned to 41D 100950 00. The following table summarizes the figures used to calculate the historic diverted volume (Table 4).

Table 4. Historic Diverted Volume

Historic Diverted Volume (HDV)	HCV AF (minus IL)	On-farm Efficiency	Seasonal Conveyance Loss Volume	Total HDV AF	
	212.2	55%	274.3	660.1	
<i>Seepage Loss:</i>	Ditch Wetted Perimeter (Feet)	Ditch Length (Feet)	Ditch Loss Rate (ft ³ /ft ² /day)	Days Irrigated	Seepage Loss (/43560)
	18.66	2140	1.6	172	252.3
<i>Vegetation Loss:</i>	% loss/mile	Est. Flow Rate (CFS) =	Days Irrigated	ditch length (miles)	Vegetation Loss (*2)
	0.0075	18.88	172	0.4	19.7
<i>Ditch Evaporation:</i>	Ditch Width (Feet)	Ditch Length (Feet)	Annual Evaporation (Potts)	Period Adjusted Evaporation	Ditch Evaporation (/43560)
	16.1	2140	3.48	2.85	2.3

¹ Water rights 41D 101138 00 and 41D 101139 00, owned by JJC Ranches LLC, are listed in the DNRC Water Rights Database as using Smith Ditch. These water rights have a different point of diversion and the Applicant stated that they are not carried by the same Smith Ditch.

CORRECTED COPY

18. The Department calculated conveyance losses using the following equations:

Seepage loss = wetted perimeter x ditch length x ditch loss rate x days irrigated

Vegetation loss = % loss/mile x flow rate x days irrigated x ditch length

Evaporation = ditch width x ditch length x evaporation constant adjusted for period of use

19. The Department calculated conveyance losses for the portion of Smith Ditch between the point of diversion in Big Hole River and the place of use. Applicant states the ditch resembles a natural meandering channel that varies in width and depth, so they provide average values: 16.1 ft wide and 1.6 ft deep. The Department did not use the ditch length provided in the application, 1.7 miles, because this length includes ditches that are inside the place of use. Instead, the Department measured ditch length with ArcGIS Pro 2.7.1 from point of diversion to beginning of place of use and found it to be 2140 feet in length. In their headgate capacity calculations, Applicant supplied channel slope (0.005 ft/ft) and side slope (0). The Department estimated the Gauckler-Manning coefficient (0.1235 sec/ft^{1/3}) using Cowan's Method based on Applicant's description of the ditch and photos included in the application (earth material, moderate degree of irregularity, channel cross section alternating frequently, appreciable effect of obstructions, high level of vegetation, and severe degree of meandering). The flow rate used for vegetation loss and to determine wetted perimeter, 18.75 CFS, is the decreed flow rate for 41D 100950-00. Wetted perimeter was found by solving Manning's Equation for flow depth given the flow rate, channel slope, bottom base width, side slope (set to 0 for rectangular channel), and Gauckler-Manning coefficient. Applicant provided a wetted perimeter in the headgate capacity calculations similar to that estimated by Manning's Equation. This Applicant-submitted wetted perimeter, however, was for the headgate and not the channel, so the wetted perimeter calculated by Manning's Equation was used. The Department used NRCS Web Soil Survey to determine the dominant soil types below this section of the Smith Ditch. The Department selected the ditch loss rate, 1.6 ft³/ft²/day, to be an average between the primarily loam/sandy loam of the Chaffee complex (WSS 327) and the sand/gravelly sandy loam of the Rivra-Ryell-Havre complex (WSS 107). The Department adjusted the evaporation constant for the Virginia City weather station, 3.48 Feet/Surface Acre

CORRECTED COPY

(Ft/SA) (Potts, 1988), to reflect 172 days per year use. The adjusted evaporation value is 2.85 (Ft/SA).

20. The Department finds the following historic use (Table 5):

Table 5. Historic Use

WR Claim #	Priority Date	Diverted Volume	Flow Rate	Purpose (Total Acres)	Consump. Use	Place of Use	Point of Diversion
41D 100950 00	12/31/ 1870	660.1 AF	18.75 CFS	Irrigation, 230 acres	231.5 AF	E2SESE Sec 31 Twp 3S Rge 6W, S2NW & SW Sec 32 Twp 3S Rge 6W, N2NE & NENW Sec 6 Twp 4S Rge 6W; all in Madison Co.	SWSWNW Sec 6, Twp 4S, Rge 6W, Madison Co.

FINDINGS OF FACT – Adverse Effect

21. Applicant proposes to change the purpose of use and add a place of storage to Water Right No. 41D 100950 00. Applicant proposes to add a fishery purpose for 16.56 AF from 1/1 to 12/31. Applicant proposes to add five places of storage that consists of five ponds with a surface water requirement of 16.56 AF. Applicant proposes to retire 16.44 acres from irrigation to offset pond surface water requirements. Applicant will leave 11 AF in the Big Hole River during the period of diversion to offset the loss of return flows due to the retired acres. The place of use and point of diversion will remain unchanged. (Application IR.4)

22. The ponds include a combination of surface water and groundwater sources. Applicant plans to file for groundwater certificates for Ponds 1-3, which will utilize a groundwater component of 2.5 AF each. The three groundwater certificates will share a place of storage with 41D 100950 00. Pond 4 is primarily groundwater (41D 30107603), but surface water will account for its net annual evaporation. Pond 5 is entirely surface water so will be fully accounted for in this change. The Department calculated the surface water component for the ponds by determining annual water requirement for each pond and calculating the amount attributable to surface water. The surface water component is always greater than or equal to the net annual evaporation. The

CORRECTED COPY

annual total water requirements (surface water and groundwater) for each pond are shown below in Table 6.

Table 6. Surface water and Groundwater Components of Annual Water Requirement

Pond	Surface Area (Acres)	Depth (ft)	Capacity (AF)	Net Annual Evaporation (AF)	Annual Water Requirement (AF)	Groundwater Component (AF)	Surface Water Component (AF)
Pond 1	0.73	12	4.38	1.96	6.34	2.5	3.84
Pond 2	0.83	12	4.98	2.23	7.21	2.5	4.71
Pond 3	0.53	12	3.18	1.42	4.6	2.5	2.1
Pond 4	0.55	12	3.3	1.48	4.78	4.78	1.48
Pond 5	0.51	12	3.06	1.37	4.43	0	4.43
Totals					27.36	12.28	16.56

23. The Department used the equation provided by the Applicant to determine how much of the annual pond water requirement is attributable to surface water (Application p. 10 of 12). The Department concluded the Applicant's analysis of surface water and groundwater inputs to the ponds was credible. The contribution of groundwater covered by groundwater certificates, 7.5 AF, is subtracted from the water requirements of ponds 1 through 3. Pond 4 is determined to be primarily groundwater fed, so the annual surface water requirement includes only net evaporation. Pond 5 is determined to be entirely surface water fed, so the total surface water requirement for Pond 5 includes capacity and net evaporation. The equation is as follows:

$$\begin{aligned} \text{Surface Water Requirement} &= (\text{total water requirement ponds 1 through 3} - 7.5 \text{ AF}) + \\ &\text{Pond 4 net evaporation} + \text{pond 5 total water requirement} = (18.15 \text{ AF} - 7.5 \text{ AF}) + 1.48 \text{ AF} \\ &+ 4.43 \text{ AF} = 16.56 \text{ AF} \end{aligned}$$

24. The Department used the equation provided by the Applicant (Application, p. 10 of 12) to determine the number of irrigated acres to retire to account for the surface water requirement of the ponds. The Applicant's equation was consistent with Administrative Rule and the Department concluded it was credible.

$$\begin{aligned} \text{Consumptive use/acre} &= \text{Historic consumptive volume minus irrecoverable losses} / \text{acres} \\ &= 212.2 \text{ AF} / 230 \text{ acres} = 0.923 \text{ AF/acre} \\ \text{Applied volume/acre} &= \text{Consumptive use/acre} / \text{field efficiency} = 0.923 \text{ AF/acre} / 0.55 = \\ &1.68 \text{ AF/acre} \end{aligned}$$

CORRECTED COPY

Irrecoverable losses/acre = Applied volume * 0.05 = 1.68 AF/acre * 0.05 = 0.08 AF/acre

Total consumptive use/acre = Consumptive use/acre + Irrecoverable losses/acre = 0.923 AF/acre + 0.08 AF/acre = 1.01 AF/acre

Retired acres = surface water requirement / total consumptive use/acre = 16.56 AF / 1.01 AF/acre = 16.44 acres

25. Per the Department's policy memorandum on irrigation efficiency (Davis, 2015), the Department will not analyze changes in consumptive use for proposed irrigation acres that fall within the boundaries of the area of historical irrigation. All proposed irrigation acres fall within the boundaries of the area of historical irrigation. The proposed consumptive use for irrigation will be calculated assuming the conditions are the same as historical consumptive volume for ET, management factor, on-farm efficiency, and irrecoverable losses. The Department calculated a historic consumptive volume of 231.5 AF for 230 acres. The proposed irrigation consumptive use for 213.56 acres, which is equal to the historic irrigated acres less the 16.44 retired irrigated acres is 214.9 AF (Table 7).

Table 7. Proposed Consumptive Use for Irrigation

Proposed Consumptive Volume (PCV) Flood Sprinkler	Madison County, Twin Bridges Flood/Sprinkler ET (Inches)	Madison County 1964-1973 Management Factor (Percent)	Proposed Acres	PCV AF (minus IL)	On-farm Efficiency	Field Application AF	Historic Irrecoverable Losses (IL) Flood 5%:	PCV AF (Including IL)
41D 10095000	16.98	65.2%	213.56	197.0	55%	358.2	17.9	214.9

26. Conveyance losses for proposed uses remain the same as historic conveyance losses, 274.3 AF, because the point of diversion, ditch dimensions, and ditch locations before the place of use remain unchanged. The Department calculated the proposed irrigation diverted volume as the proposed irrigation consumptive use minus irrecoverable losses / on-farm efficiency + seasonal conveyance loss volume (197.0 AF / 0.55 + 274.3 AF = 632.5 AF).

27. The Department calculated the proposed consumptive use as the sum of the proposed consumptive volume for irrigation and the surface water requirement for the five unlined ponds (214.9 AF + 16.56 AF = 231.5 AF). The Department considered the surface water requirement for the ponds consumptive based on the Application (IR.1.F) and to prevent underestimating surface water consumed given the variable nature of the surface and groundwater inputs. The

CORRECTED COPY

proposed consumptive use is equal to the historic consumptive use of 231.5 AF. The proposed diverted volume for irrigation is equal to the proposed consumptive use minus irrecoverable losses divided by on-farm efficiency plus seasonal conveyance loss volume ($197.0 \text{ AF} / 0.55 + 274.3 \text{ AF} = 632.5 \text{ AF}$). The proposed diverted volume for the overall water right equals the surface water requirements for the ponds plus the proposed diverted volume for irrigation ($16.56 \text{ AF} + 632.5 \text{ AF} = 649.1 \text{ AF}$). The proposed diverted volume is less than the historic diverted volume, 660.1 AF.

28. The Applicant analyzed return flows on an annual basis because the Applicant asserted the project meets the requirements of the Return Flows Policy Memo (Davis, 2016) to not analyze the rate and timing of return flows, absent a valid objection. The requirements of the Davis (2016) memo are: return flows will enter back to the same historical source upstream of next downstream appropriator, water is left instream so historically diverted flows are available during the historic period of diversion, and the change does not constitute an enlargement of flow rate and consumptive use. This Department's Water Management Bureau modeled return flows and confirmed the assertion that the return flows enter back to the Big Hole River. The Department agrees with the Applicant that the project meets the requirements of the Davis memo (Davis, 2016) that enable evaluating return flows on an annual rather than monthly basis, as well as confirming the location where return flows historically return to the source.

29. The Big Hole River is the hydraulically connected surface water for the purpose of evaluating return flows. The Return Flow Report identified the receiving reach of the Big Hole River to be downstream of the southern boundary of Section 31, Township 3 South, Range 6 West. The Department excluded potential seepage from the unlined ponds from their return flow calculations because the amount of surface water seepage from ponds that produce return flows is unknown. Excluding potential surface water seepage from ponds prevents overestimating return flows and in turn underestimating the potential for adverse effect.

30. The Department and Applicant calculated return flows with different equations but achieved the same results. The Applicant calculated the historic return flow per acre as the historic applied volume per acre less the historic total consumptive use per acre ($1.68 \text{ AF/acre} - 1.01 \text{ AF/acre} = 0.67 \text{ AF/acre}$). The Applicant calculated the return flows associated with the retired acres by multiplying 0.67 AF/acre by 16.44 acres, which is 11.01 AF. The Department calculated

CORRECTED COPY

the return flows under historic practices by subtracting the historic consumptive volume including irrecoverable losses from the historic field application (385.8 AF - 231.5 AF = 154.3 AF). The Department calculated the volume of return flow under the new practice by subtracting the proposed consumptive volume including irrecoverable losses for irrigation from the proposed field application (358.2 AF - 214.9 AF = 143.3 AF) and determined the annual difference between historic and proposed return flows is a net decrease of 11 AF. The Applicant calculated the flow rate of the change return flows to be 0.03 cfs (11 AF reduction in return flows under new practice / 172 days in period of use / 1.98 to convert from AF to CFS). The Applicant proposed to leave 0.03 CFS, 11 AF per year in volume, in the source at the Smith Ditch headgate to prevent potential adverse effect to other appropriators. The Department finds the Applicant's proposal to leave 11 AF volume during the period of diversion in Big Hole River at the Smith Ditch headgate to be sufficient to prevent potential adverse effect to other appropriators for the loss in return flows from the retired acres. The Department does not find that the water left instream needs to occur at a constant flow rate 0.03 CFS, but rather finds water can be left instream as 11 AF volume during the period of diversion, in a way determined by the Applicant that does not exceed the historical flow rate for all purposes. (Application IR.4)

31. No water rights supplement 41D 100950 00 to irrigate acres in the historic place of use. Groundwater certificates exist on the place of use for fishery ponds and for domestic use and lawn and garden use. The groundwater certificates for domestic and lawn and garden use are not used for the irrigation purpose and are not connected to this change. Groundwater certificates for ponds that are not hydrologically connected to the Ponds 1-5 are not connected to this change. The remaining groundwater certificates in the historic place of use supplement the proposed surface water use for Ponds 1-5 (Table 8).

CORRECTED COPY

Table 8. Water Rights for Each Pond

Pond	Annual Water Requirement (AF)	Groundwater Component (AF)	Surface Water Component (AF)	Water Rights
Pond 1	6.34	2.5	3.84	<u>GW</u> : 41D 30105523 (current) will be replaced with Proposed Groundwater Certificate 1 for 2.5 AF. <u>SW</u> : 41D 100950 00
Pond 2	7.21	2.5	4.71	<u>GW</u> : Proposed Groundwater Certificate 2 for 2.5 AF. <u>SW</u> : 41D 100950 00
Pond 3	4.6	2.5	2.1	<u>GW</u> : Proposed Groundwater Certificate 3 for 2.5 AF. <u>SW</u> : 41D 100950 00
Pond 4	4.78	4.78	1.48	<u>GW</u> : 41D 30107603. <u>SW</u> : 41D 100950 00
Pond 5	4.43	0	4.43	<u>GW</u> : N/A. <u>SW</u> : 41D 100950 00
Totals	27.36	12.28	16.56	

32. While the specific contribution of groundwater versus surface water to each pond will vary year-to-year, the Applicant provided average values for each pond. The Department finds it more probable than not that the Applicant's estimates for groundwater and surface water contributions to the ponds is on average accurate. Groundwater certificate 41D 30105523 currently supplies Pond 1. The Applicant will withdraw 41D 30105523 when this change is authorized. The Applicant will then apply for a new groundwater certificate for 2.5 AF for the groundwater inputs to Pond 1. The total water use for Pond 1 will not exceed the annual water requirement (capacity + net annual evaporation). The Department finds it more probable than not that, on average, the surface water use for Pond 1 will not exceed the annual water requirement less the 2.5 AF groundwater inputs (6.34 AF – 2.5 AF = 3.84 AF). Ponds 2 and 3 do not have an existing groundwater certificate. The Applicant will apply for two groundwater certificates for 2.5 AF each for the groundwater inputs to Ponds 2 and 3. The Department finds it more probable than not that, on average, the surface water to Ponds 2 and 3 will not exceed their annual water requirements less 2.5 AF. Pond 4 is primarily groundwater fed and the net evaporation for Pond 4 will be covered by two water rights, 41D 100950 00 and existing groundwater certificate 41D 30107603. The Department finds it more probable than not the surface water contribution to Pond 4 will not exceed the annual net evaporation. Pond 5 will be entirely covered by 41D 100950 00 with no supplemental groundwater certificates. (Application, IR.1.F)

33. The Applicant asserts no other water rights will be impacted because the flow rate will not exceed the historic flow rate, the consumptive use of the ponds will be offset by retired acres, groundwater certificates will supply the groundwater inputs to the unlined ponds, and the loss of

CORRECTED COPY

return flows from retired acres will be offset by water left in the source at the headgate. The Department finds a preponderance of evidence to support the Applicant's assertion. The Applicant can control the flow rate diverted through the headgate with wooden boards to ensure the historic flow rate is not exceeded. The Applicant can use the wooden boards to allow 11 AF to remain in the source and to divert a maximum of 18.75 CFS at the headgate. The Department confirmed the retired acres will offset the surface water component of the pond water requirement. The Department confirmed 11 AF left in the source at the headgate will offset the loss of return flows, which helps prevent potential adverse effect to other water right owners. The proposed changes are not anticipated to affect the pattern of call. (Application, IR.4)

34. The Department finds the proposed changes will not change the historic timing of diversion. The fishery purpose is year-round but the period of diversion into the ponds will remain unchanged. The fishery purpose outside of the period of diversion will be supported by the water stored during the period of diversion. The ponds will be used to pass flow-through water to irrigate 13 acres during the irrigation period of use. Any of the five ponds can be used to provide flow-through water for the big gun irrigation of 13 acres. No water for irrigation will be stored in the ponds. The irrigated acres do not have a history of calls, so the stored water will not expand the number of days irrigated.

35. The Applicant has a Cutthroat flume on the Smith Ditch approximately 600' down-ditch of the headgate. The flume is 6' wide by 9' long and has a maximum capacity of 122 CFS. The Applicant has not historically and is not currently recording measurements at the flume. No reporting is required to the Department. (Application, IR.3).

36. The Department finds there will be no adverse effects from the proposed change application.

BENEFICIAL USE

FINDINGS OF FACT

37. Applicant proposes to use water for irrigation and fishery purposes, which are recognized beneficial uses of water in the State of Montana under the Montana Water Use Act, §85-2-102(5).

CORRECTED COPY

38. Applicant proposes to divert 632.5 AF and consume 214.9 AF to irrigate 213.56 acres. This amount is supported by DNRC Rule, ARM 36.12.1902. Applicant described current irrigation practices as approximately 96 acres of sprinkler and pivot irrigation and approximately 147 acres of flood irrigation. The Department found 230 irrigated acres in the historic place of use. All currently and proposed irrigated acres are in the historic place of use and will be treated as flood irrigation for calculations because this was the method of irrigation prior to July 1, 1973. (Application, IR.6.A)

39. Applicant proposes 16.56 AF for the fishery purpose, which will support the surface water requirement for five ponds, which is the surface water component of capacity and net evaporation. Applicant calculated pond capacity and net evaporation and the Department confirmed these figures. Applicant estimated the volume of surface water inputs to the ponds as an average value based on pond characteristics since the actual inputs of groundwater will vary. The Department concluded the surface water requirements of the ponds proposed by the Applicant are more probable than not. (Application IR.4.B)

40. Spanish Peaks Engineering & Consulting, LLC designed the depths and surface areas of the ponds to provide suitable fish habitat and to support habitat for aquatic insects and biofilms. The surface water inputs from Smith Ditch will help to prevent winterkill of fish by circulating freshwater through the ponds and supporting appropriate water chemistry. During the winter, water can be circulated between ponds and will not be diverted from the Big Hole River. The Applicant estimates the ponds will support 315-630 catchable size trout. This amount is supported by guidelines that suggest ponds can support 100-200, 8–10-inch trout per surface acre (1981 Trout Farming in Washington EB756. Washington Cooperative Extension. 20 p). Department of Fish, Wildlife, & Parks has issued Private Pond Permits for trout for three of the five ponds, which gives weight to the fact that the ponds are sufficient to support trout populations. (Application, IR.1.F)

41. The Department finds that the volumes requested for irrigation and fishery purposes are reasonable and necessary for the proposed beneficial uses.

ADEQUATE DIVERSION

FINDINGS OF FACT

CORRECTED COPY

42. The historic and proposed means of diversion from Big Hole River is a headgate at SWSWNW Section 6, Township 4 South Range 5 West. The headgate is made of wood and cast iron. Applicant estimates maximum capacity is 436 CFS using Manning's equation and Auburn University's open channel flow calculator. The parameters for Manning's equation are a Manning's coefficient of 0.015 for riveted steel and a slope of 0.005. The Department confirmed the Applicant's estimate of the headgate maximum capacity. (Application IR.3.D and IR.3.E)

43. Water is conveyed from headgate to the place of use through the Smith Ditches and throughout the place of use by lateral ditches. (Application IR.3.C)

44. All five ponds are unlined. Pond 2 is connected to the middle branch of the Smith Ditch by an 8" PVC pipe. Ponds 1 and 2 are connected to each other by an 8" PVC pipe. During the period of diversion water is conveyed from Smith Ditch into Pond 2 then into Pond 1. Outside the period of diversion water is stored in Ponds 1 and 2 but may move back into the Smith Ditch to circulate water between the ponds. Pond 3 is connected to Smith Ditch with a 4" PVC pipe. Water is diverted into Pond 3 during the period of diversion. Outside of the period of diversion water is either stored in Pond 3 or moves back to Smith Ditch via the PVC pipe to circulate between the ponds. Pond 5 is connected to the Smith Ditch by an 8" PVC pipe and an 8" PVC pipe connects Ponds 4 and 5. During the period of diversion, water is diverted from Smith Ditch to Pond 5 and then passes to Pond 4. Outside of the period of diversion water is stored in Ponds 4 and 5 but can also be released back into Smith Ditch to circulate between the ponds.

45. The Department estimated the flow rate that can move through the pipelines connecting the ponds to the Smith Ditch using the Hazen-Williams equation. The Department used the following parameters for the Hazen-Williams equation: pipe diameters provided by the Applicant, plastic material with a roughness coefficient of 150, pipe lengths from Proposed Use Map measured in ArcGIS Pro, and a drop of one foot that was estimated with topographic maps. The pipe connecting Ponds 1 and 2 is 8" wide and 401 feet long, which conveys an estimated maximum flow rate of 0.877 CFS. The pipe connecting Pond 3 is 4" wide and 190 feet long, which conveys an estimated maximum flow rate of 0.212 CFS. The pipe connecting Ponds 4 and 5 is 8" wide and 261 feet long, which conveys an estimated maximum flow rate of 1.106 CFS.

46. A portable pump will be placed on any of the five ponds to supply big gun sprinkler systems to irrigate approximately 13 acres surrounding the ponds. The water used for the big gun

CORRECTED COPY

sprinklers will flow through the ponds. No irrigation water will be stored in the five ponds (Application IR.5)

47. The Department finds that the means of diversion is adequate and capable of diverting the requested volume.

POSSESSORY INTEREST

FINDINGS OF FACT

48. The Applicant signed the affidavit on the application form affirming the applicant has possessory interest, or the written consent of the person with the possessory interest, in the property where the water is to be put to beneficial use. (Department file)

CONCLUSIONS OF LAW

HISTORIC USE AND ADVERSE EFFECT

49. Montana's change statute codifies the fundamental principles of the Prior Appropriation Doctrine. Sections 85-2-401 and -402(1)(a), MCA, authorize changes to existing water rights, permits, and water reservations subject to the fundamental tenet of Montana water law that one may change only that to which he or she has the right based upon beneficial use. A change to an existing water right may not expand the consumptive use of the underlying right or remove the well-established limit of the appropriator's right to water actually taken and beneficially used. An increase in consumptive use constitutes a new appropriation and is subject to the new water use permit requirements of the MWUA. McDonald v. State, 220 Mont. 519, 530, 722 P.2d 598, 605 (1986)(beneficial use constitutes the basis, measure, and limit of a water right); Featherman v. Hennessy, 43 Mont. 310, 316-17, 115 P. 983, 986 (1911)(increased consumption associated with expanded use of underlying right amounted to new appropriation rather than change in use); Quigley v. McIntosh, 110 Mont. 495, 103 P.2d 1067, 1072-74 (1940)(appropriator may not expand a water right through the guise of a change – expanded use constitutes a new use with a new priority date junior to intervening water uses); Allen v. Petrick, 69 Mont. 373, 222 P. 451(1924)(“quantity of water which may be claimed lawfully under a prior appropriation is limited to that quantity within the amount claimed which the appropriator has needed, and which within a reasonable time he has actually and economically applied to a beneficial use. . . . it may be said that the principle of beneficial use is the one of paramount importance . . . The appropriator does

CORRECTED COPY

not own the water. He has a right of ownership in its use only”); Town of Manhattan, at ¶ 10 (an appropriator’s right only attaches to the amount of water actually taken and beneficially applied); Town of Manhattan v. DNRC, Cause No. DV-09-872C, Montana Eighteenth Judicial District Court, *Order Re Petition for Judicial Review*, Pg. 9 (2011)(the rule that one may change only that to which it has a right is a fundamental tenet of Montana water law and imperative to MWUA change provisions); In the Matter of Application to Change a Water Right No. 411 30002512 by Brewer Land Co, LLC, DNRC Proposal For Decision and Final Order (2004).²

50. Sections 85-2-401(1) and -402(2)(a), MCA, codify the prior appropriation principles that Montana appropriators have a vested right to maintain surface and ground water conditions substantially as they existed at the time of their appropriation; subsequent appropriators may insist that prior appropriators confine their use to what was actually appropriated or necessary for their originally intended purpose of use; and, an appropriator may not change or alter its use in a manner that adversely affects another water user. Spokane Ranch & Water Co. v. Beatty, 37 Mont. 342, 96 P. 727, 731 (1908); Quigley, 110 Mont. at 505-11, 103 P.2d at 1072-74; Matter of Royston, 249 Mont. at 429, 816 P.2d at 1057; Hohenlohe, at ¶¶43-45.³

51. The cornerstone of evaluating potential adverse effect to other appropriators is the determination of the “historic use” of the water right being changed. Town of Manhattan, at ¶10 (recognizing that the Department’s obligation to ensure that change will not adversely affect other water rights requires analysis of the actual historic amount, pattern, and means of water use). A change applicant must prove the extent and pattern of use for the underlying right proposed for change through evidence of the historic diverted amount, consumed amount, place of use, pattern of use, and return flow because a statement of claim, permit, or decree may not include the beneficial use information necessary to evaluate the amount of water available for change or

² DNRC decisions are available at:

http://www.dnrc.mt.gov/wrd/water_rts/hearing_info/hearing_orders/hearingorders.asp

³ See also Holmstrom Land Co., Inc., v. Newlan Creek Water District, 185 Mont. 409, 605 P.2d 1060 (1979); Lokowich v. Helena, 46 Mont. 575, 129 P. 1063(1913); Thompson v. Harvey, 164 Mont. 133, 519 P.2d 963 (1974)(plaintiff could not change his diversion to a point upstream of the defendants because of the injury resulting to the defendants); McIntosh v. Graveley, 159 Mont. 72, 495 P.2d 186 (1972)(appropriator was entitled to move his point of diversion downstream, so long as he installed measuring devices to ensure that he took no more than would have been available at his original point of diversion); Head v. Hale, 38 Mont. 302, 100 P. 222 (1909)(successors of the appropriator of water appropriated for placer mining purposes cannot so change its use as to deprive lower appropriators of their rights, already acquired, in the use of it for irrigating purposes); and, Gassert v. Noyes, 18 Mont. 216, 44 P. 959(1896)(change in place of use was unlawful where reduced the amount of water in the source of supply available which was subject to plaintiff’s subsequent right).

CORRECTED COPY

potential for adverse effect.⁴ A comparative analysis of the historic use of the water right to the proposed change in use is necessary to prove the change will not result in expansion of the original right, or adversely affect water users who are entitled to rely upon maintenance of conditions on the source of supply for their water rights. Quigley, 103 P.2d at 1072-75 (it is necessary to ascertain historic use of a decreed water right to determine whether a change in use expands the underlying right to the detriment of other water user because a decree only provides a limited description of the right); Royston, 249 Mont. at 431-32, 816 P.2d at 1059-60 (record could not sustain a conclusion of no adverse effect because the applicant failed to provide the Department with evidence of the historic diverted volume, consumption, and return flow); Hohenlohe, at ¶44-45; Town of Manhattan v. DNRC, Cause No. DV-09-872C, Montana Eighteenth Judicial District Court, *Order Re Petition for Judicial Review*, Pgs. 11-12 (proof of historic use is required even when the right has been decreed because the decreed flow rate or volume establishes the maximum appropriation that may be diverted, and may exceed the historical pattern of use, amount diverted or amount consumed through actual use); Matter of Application For Beneficial Water Use Permit By City of Bozeman, *Memorandum*, Pgs. 8-22 (Adopted by DNRC *Final Order* January 9, 1985)(evidence of historic use must be compared to the proposed change in use to give effect to the implied limitations read into every decreed right that an appropriator has no right to expand his appropriation or change his use to the detriment of juniors).⁵

⁴A claim only constitutes *prima facie* evidence for the purposes of the adjudication under § 85-2-221, MCA. The claim does not constitute *prima facie* evidence of historical use in a change proceeding under §85-2-402, MCA. For example, most water rights decreed for irrigation are not decreed with a volume and provide limited evidence of actual historic beneficial use. §85-2-234, MCA

⁵ Other western states likewise rely upon the doctrine of historic use as a critical component in evaluating changes in appropriation rights for expansion and adverse effect: Pueblo West Metropolitan District v. Southeastern Colorado Water Conservancy District, 717 P.2d 955, 959 (Colo. 1986)(“[O]nce an appropriator exercises his or her privilege to change a water right ... the appropriator runs a real risk of requantification of the water right based on actual historical consumptive use. In such a change proceeding a junior water right ... which had been strictly administered throughout its existence would, in all probability, be reduced to a lesser quantity because of the relatively limited actual historic use of the right.”); Santa Fe Trail Ranches Property Owners Ass'n v. Simpson, 990 P.2d 46, 55 -57 (Colo., 1999); Farmers Reservoir and Irr. Co. v. City of Golden, 44 P.3d 241, 245 (Colo. 2002)(“We [Colorado Supreme Court] have stated time and again that the need for security and predictability in the prior appropriation system dictates that holders of vested water rights are entitled to the continuation of stream conditions as they existed at the time they first made their appropriation); Application for Water Rights in Rio Grande County, 53 P.3d 1165, 1170 (Colo. 2002); Wyo. Stat. § 41-3-104 (When an owner of a water right wishes to change a water right ... he shall file a petition requesting permission to make such a change The change ... may be allowed provided that the quantity of water transferred ... shall not exceed the amount of water historically diverted under the existing use, nor increase the historic rate of diversion under the existing use, nor increase the historic

CORRECTED COPY

52. An applicant must also analyze the extent to which a proposed change may alter historic return flows for purposes of establishing that the proposed change will not result in adverse effect. The requisite return flow analysis reflects the fundamental tenant of Montana water law that once water leaves the control of the original appropriator, the original appropriator has no right to its use and the water is subject to appropriation by others. E.g., Hohenlohe, at ¶44; Rock Creek Ditch & Flume Co. v. Miller, 93 Mont. 248, 17 P.2d 1074, 1077 (1933); Newton v. Weiler, 87 Mont. 164, 286 P. 133(1930); Popham v. Holloron, 84 Mont. 442, 275 P. 1099, 1102 (1929); Galiger v. McNulty, 80 Mont. 339, 260 P. 401 (1927); Head v. Hale, 38 Mont. 302, 100 P. 222 (1909); Spokane Ranch & Water Co., 37 Mont. at 351-52, 96 P. at 731; Hidden Hollow Ranch v. Fields, 2004 MT 153, 321 Mont. 505, 92 P.3d 1185; In the Matter of Application for Change Authorization No. G (W)028708-411 by Hedrich/Straugh/Ringer, DNRC Final Order (Dec. 13, 1991); In the Matter of Application for Change Authorization No. G(W)008323-G76l By Starkel/Koester, DNRC Final Order (Apr. 1, 1992); In the Matter of Application to Change a Water Right No. 41l 30002512 by Brewer Land Co, LLC, DNRC Proposal For Decision and Final Order (2004); Admin. R.M. 36.12.101(56)(Return flow - that part of a diverted flow which is not consumed by the appropriator and returns underground to its original source or another source of water - is not part of a water right and is subject to appropriation by subsequent water users).⁶

53. Although the level of analysis may vary, analysis of the extent to which a proposed change may alter the amount, location, or timing return flows is critical in order to prove that the proposed change will not adversely affect other appropriators who rely on those return flows as part of the source of supply for their water rights. Royston, 249 Mont. at 431, 816 P.2d at 1059-60; Hohenlohe, at ¶¶ 45-6 and 55-6; Spokane Ranch & Water Co., 37 Mont. at 351-52, 96 P. at 731.

amount consumptively used under the existing use, nor decrease the historic amount of return flow, nor in any manner injure other existing lawful appropriators.); Basin Elec. Power Co-op. v. State Bd. of Control, 578 P.2d 557, 564 -566 (Wyo,1978) (a water right holder may not effect a change of use transferring more water than he had historically consumptively used; regardless of the lack of injury to other appropriators, the amount of water historically diverted under the existing use, the historic rate of diversion under the existing use, the historic amount consumptively used under the existing use, and the historic amount of return flow must be considered.)

⁶ The Montana Supreme Court recently recognized the fundamental nature of return flows to Montana's water sources in addressing whether the Mitchell Slough was a perennial flowing stream, given the large amount of irrigation return flow which feeds the stream. The Court acknowledged that the Mitchell's flows are fed by irrigation return flows available for appropriation. Bitterroot River Protective Ass'n, Inc. v. Bitterroot Conservation Dist. 2008 MT 377, ¶¶ 22, 31, 43, 346 Mont. 508, ¶¶ 22, 31,43, 198 P.3d 219, ¶¶ 22, 31,43(citing Hidden Hollow Ranch v. Fields, 2004 MT 153, 321 Mont. 505, 92 P.3d 1185).

CORRECTED COPY

Noted Montana Water Law scholar Al Stone explained that the water right holder who seeks to change a water right is unlikely to receive the full amount claimed or historically used at the original place of use due to reliance upon return flows by other water users. Montana Water Law, Albert W. Stone, Pgs. 112-17 (State Bar of Montana 1994).

54. In Royston, the Montana Supreme Court confirmed that an applicant is required to prove lack of adverse effect through comparison of the proposed change to the historic use, historic consumption, and historic return flows of the original right. 249 Mont. at 431, 816 P.2d at 1059-60. More recently, the Montana Supreme Court explained the relationship between the fundamental principles of historic beneficial use, return flow, and the rights of subsequent appropriators as they relate to the adverse effect analysis in a change proceeding in the following manner:

The question of adverse effect under §§ 85-2-402(2) and -408(3), MCA, implicates return flows. A change in the amount of return flow, or to the hydrogeologic pattern of return flow, has the potential to affect adversely downstream water rights. There consequently exists an inextricable link between the “amount historically consumed” and the water that re-enters the stream as return flow. . . .

An appropriator historically has been entitled to the greatest quantity of water he can put to use. The requirement that the use be both beneficial and reasonable, however, proscribes this tenet. This limitation springs from a fundamental tenet of western water law—that an appropriator has a right only to that amount of water historically put to beneficial use—developed in concert with the rationale that each subsequent appropriator “is entitled to have the water flow in the same manner as when he located,” and the appropriator may insist that prior appropriators do not affect adversely his rights.

This fundamental rule of Montana water law has dictated the Department’s determinations in numerous prior change proceedings. The Department claims that historic consumptive use, as quantified in part by return flow analysis, represents a key element of proving historic beneficial use.

We do not dispute this interrelationship between historic consumptive use, return flow, and the amount of water to which an appropriator is entitled as limited by his past beneficial use.

Hohenlohe, at ¶¶ 42-45 (internal citations omitted).

55. The Department’s rules reflect the above fundamental principles of Montana water law and are designed to itemize the type of evidence and analysis required for an applicant to meet its burden of proof. Admin.R.M. 36.12.1901 through 1903. These rules forth specific evidence and analysis required to establish the parameters of historic use of the water right being changed. Admin.R.M. 36.12.1901 and 1902. The rules also outline the analysis required to establish a lack

CORRECTED COPY

of adverse effect based upon a comparison of historic use of the water rights being changed to the proposed use under the changed conditions along with evaluation of the potential impacts of the change on other water users caused by changes in the amount, timing, or location of historic diversions and return flows. Admin.R.M. 36.12.1901 and 1903.

56. Applicant seeks to change existing water rights represented by its Water Right Claims. The “existing water rights” in this case are those as they existed prior to July 1, 1973, because with limited exception, no changes could have been made to those rights after that date without the Department’s approval. Analysis of adverse effect in a change to an “existing water right” requires evaluation of what the water right looked like and how it was exercised prior to July 1, 1973. In McDonald v. State, the Montana Supreme Court explained:

The foregoing cases and many others serve to illustrate that what is preserved to owners of appropriated or decreed water rights by the provision of the 1972 Constitution is what the law has always contemplated in this state as the extent of a water right: such amount of water as, by pattern of use and means of use, the owners or their predecessors put to beneficial use. . . . the Water Use Act contemplates that all water rights, regardless of prior statements or claims as to amount, must nevertheless, to be recognized, pass the test of historical, unabandoned beneficial use. . . . To that extent only the 1972 constitutional recognition of water rights is effective and will be sustained.

220 Mont. at 529, 722 P.2d at 604; see also Matter of Clark Fork River Drainage Area, 254 Mont. 11, 17, 833 P.2d 1120 (1992).

57. Water Resources Surveys were authorized by the 1939 legislature. 1939 Mont. Laws Ch. 185, § 5. Since their completion, Water Resources Surveys have been invaluable evidence in water right disputes and have long been relied on by Montana courts. In re Adjudication of Existing Rights to Use of All Water in North End Subbasin of Bitterroot River Drainage Area in Ravalli and Missoula Counties, 295 Mont. 447, 453, 984 P.2d 151, 155 (1999)(Water Resources Survey used as evidence in adjudicating of water rights); Wareing v. Schreckendgust, 280 Mont. 196, 213, 930 P.2d 37, 47 (1996)(Water Resources Survey used as evidence in a prescriptive ditch easement case); Olsen v. McQueary, 212 Mont. 173, 180, 687 P.2d 712, 716 (1984) (judicial notice taken of Water Resources Survey in water right dispute concerning branches of a creek).

58. While evidence may be provided that a particular parcel was irrigated, the actual amount of water historically diverted and consumed is critical. E.g., In the Matter of Application to Change

CORRECTED COPY

Water Right No. 41H 1223599 by MGRR #1, LLC., DNRC Proposal for Decision adopted by Final Order (2005). The Department cannot assume that a parcel received the full duty of water or that it received sufficient water to constitute full service irrigation for optimum plant growth. Even when it seems clear that no other rights could be affected solely by a particular change in the location of diversion, it is essential that the change also not enlarge an existing right. See MacDonald, 220 Mont. at 529, 722 P.2d at 604; Featherman, 43 Mont. at 316-17, 115 P. at 986; Trail's End Ranch, L.L.C. v. Colorado Div. of Water Resources 91 P.3d 1058, 1063 (Colo., 2004).

59. The Department has adopted a rule providing for the calculation of historic consumptive use where the applicant proves by a preponderance of the evidence that the acreage was historically irrigated. Admin. R. M. 36.12.1902 (16). In the alternative an applicant may present its own evidence of historic beneficial use. In this case Applicant has elected to proceed under Admin. R.M. 36.12.1902. (FOF No. 14).

60. If an applicant seeks more than the historic consumptive use as calculated by Admin.R.M .36.12.1902 (16), the applicant bears the burden of proof to demonstrate the amount of historic consumptive use by a preponderance of the evidence. The actual historic use of water could be less than the optimum utilization represented by the calculated duty of water in any particular case. E.g., Application for Water Rights in Rio Grande County 53 P.3d 1165 (Colo., 2002) (historical use must be quantified to ensure no enlargement); In the Matter of Application to Change Water Right No. 41H 1223599 by MGRR #1, LLC., supra; Orr v. Arapahoe Water and Sanitation Dist. 753 P.2d 1217, 1223 -1224 (Colo., 1988)(historical use of a water right could very well be less than the duty of water); Weibert v. Rothe Bros., Inc., 200 Colo. 310, 317, 618 P.2d 1367, 1371 - 1372 (Colo. 1980) (historical use could be less than the optimum utilization “duty of water”).

61. Based upon the Applicant's evidence of historic use, the Applicant has proven by a preponderance of the evidence the historic use of Water Right Claim No. 41D 100950 00 of 660.1 AF diverted volume and 18.75 CFS flow rate with a consumptive use of 231.5 AF. (FOF Nos. 11—20)

62. Based upon the Applicant's comparative analysis of historic water use and return flows to water use and return flows under the proposed change, the Applicant has proven that the proposed change in appropriation right will not adversely affect the use of the existing water rights

CORRECTED COPY

of other persons or other perfected or planned uses or developments for which a permit or certificate has been issued or for which a state water reservation has been issued. §85-2-402(2)(b), MCA. (FOF Nos. 21—36)

BENEFICIAL USE

63. A change applicant must prove by a preponderance of the evidence the proposed use is a beneficial use. §§85-2-102(4) and -402(2)(c), MCA. Beneficial use is and has always been the hallmark of a valid Montana water right: “[T]he amount actually needed for beneficial use within the appropriation will be the basis, measure, and the limit of all water rights in Montana . . .” McDonald, 220 Mont. at 532, 722 P.2d at 606. The analysis of the beneficial use criterion is the same for change authorizations under §85-2-402, MCA, and new beneficial permits under §85-2-311, MCA. Admin.R.M. 36.12.1801. The amount of water that may be authorized for change is limited to the amount of water necessary to sustain the beneficial use. E.g., Bitterroot River Protective Association v. Siebel, *Order on Petition for Judicial Review*, Cause No. BDV-2002-519, Montana First Judicial District Court (2003) (*affirmed on other grounds*, 2005 MT 60, 326 Mont. 241, 108 P.3d 518); Worden v. Alexander, 108 Mont. 208, 90 P.2d 160 (1939); Allen v. Petrick, 69 Mont. 373, 222 P. 451(1924); Sitz Ranch v. DNRC, DV-10-13390, Montana Fifth Judicial District Court, *Order Affirming DNRC Decision*, Pg. 3 (2011)(citing BRPA v. Siebel, 2005 MT 60, and rejecting applicant’s argument that it be allowed to appropriate 800 acre-feet when a typical year would require 200-300 acre-feet); Toohey v. Campbell, 24 Mont. 13, 60 P. 396 (1900)(“The policy of the law is to prevent a person from acquiring exclusive control of a stream, or any part thereof, not for present and actual beneficial use, but for mere future speculative profit or advantage, without regard to existing or contemplated beneficial uses. He is restricted in the amount that he can appropriate to the quantity needed for such beneficial purposes.”); §85-2-312(1)(a), MCA (DNRC is statutorily prohibited from issuing a permit for more water than can be beneficially used).

64. In the Matter of Beneficial Water Use Permit No. 41H-30013678 by Baker Ditch Company, DNRC Statement of Opinion (June 11, 2008)(change authorization denied - no credible evidence provided on which a determination can be made of whether the quantity of water requested is

CORRECTED COPY

adequate or necessary to sustain the fishery use, or that the size or depth of the ponds is adequate for a fishery).

65. In the Matter of Application for Beneficial Water Use Permit No. 43C 30007297 by Dee Deaterly, (DNRC Final Order 2007), *aff'd on other grounds*, Deaterly v. DNRC et al., Cause No. BDV-2007-186, Montana First Judicial District, *Nunc Pro Tunc Order on Petition for Judicial Review* (2008) (permit denied in part because of failure to support quantity of water needed for pond); see also §85-2-312(1) (a), MCA.

66. Applicant proposes to use water for irrigation and fishery purposes which are recognized beneficial uses. §85-2-102(5), MCA. Applicant has proven by a preponderance of the evidence irrigation is a beneficial use and that 632.5 AF of diverted volume and 18.75 CFS flow rate of water requested is the amount needed to sustain the beneficial use and is within the standards set by DNRC Rule. Applicant has proven by a preponderance of the evidence fisheries is a beneficial use and that 16.56 AF of diverted volume and no additional flow rate of water requested is the amount needed to sustain the beneficial use. §85-2-402(2)(c), MCA (FOF Nos. 37—41)

ADEQUATE MEANS OF DIVERSION

67. Pursuant to §85-2-402 (2)(b), MCA, the Applicant must prove by a preponderance of the evidence that the proposed means of diversion, construction, and operation of the appropriation works are adequate. This codifies the prior appropriation principle that the means of diversion must be reasonably effective for the contemplated use and may not result in a waste of the resource. Crowley v. 6th Judicial District Court, 108 Mont. 89, 88 P.2d 23 (1939); In the Matter of Application for Beneficial Water Use Permit No. 41C-11339900 by Three Creeks Ranch of Wyoming LLC (DNRC Final Order 2002)(information needed to prove that proposed means of diversion, construction, and operation of the appropriation works are adequate varies based upon project complexity; design by licensed engineer adequate).

68. Pursuant to §85-2-402 (2)(b), MCA, applicant has proven by a preponderance of the evidence that the proposed means of diversion, construction, and operation of the appropriation works are adequate for the proposed beneficial use. (FOF Nos. 42—47)

CORRECTED COPY

POSSESSORY INTEREST

69. Pursuant to §85-2-402(2)(d), MCA, the Applicant must prove by a preponderance of the evidence that it has a possessory interest, or the written consent of the person with the possessory interest, in the property where the water is to be put to beneficial use. See also Admin.R.M. 36.12.1802

70. The Applicant has proven by a preponderance of the evidence that it has a possessory interest, or the written consent of the person with the possessory interest, in the property where the water is to be put to beneficial use. (FOF No. 48)

PRELIMINARY DETERMINATION

Subject to the terms and analysis in this Preliminary Determination Order, the Department preliminarily determines that this Application to Change Water Right No. 41D 30147384 should be GRANTED subject to the following.

The purpose of Water Right No. 41D 100950 00 will be changed to irrigation and fishery purposes. Applicant will continue to divert water from Big Hole River into Smith Ditch at SWSWNW Section 6, Township 4 South Range 6 West, Madison County. Applicant is authorized to divert 18.75 CFS of water. Historical diverted volume is 660.1 AF, and the proposed total volume moving forward is 649.1 AF, with 11 AF remaining during the period of diversion in Big Hole River at the headgate. Applicant will continue to divert water during a period of diversion from May 1st to October 19th. Applicant is authorized to use water for irrigation of 213.56 acres in the historic place of use (Table 9) during a period of use from May 1st to October 19th.

Table 9. Irrigation Legal Land Description

ID	Acres	Qtr Sec	Sec	Twp	Rge	County
1	6.66	E2SESE	31	3S	6W	MADISON
2	9	S2NW	32	3S	6W	MADISON
3	120.02	SW	32	3S	6W	MADISON
4	59.43	N2NE	6	4S	6W	MADISON
5	18.45	NENW	6	4S	6W	MADISON
Total: 213.56						

CORRECTED COPY

Applicant is authorized to add five places of storage (Table 10) with a combined capacity of 18.9 AF, net annual evaporation of 8.46 AF, and annual water requirement of 27.36 AF.

Table 10. Reservoir Information for Ponds 1-5

Pond	Surface Area (sq ft)	Depth (ft)	Capacity (AF)	Net Annual Evaporation (AF)	Annual Water Requirement (AF)	Surface Water Component (AF)	Legal Land Description
Pond 1	0.73	12	4.38	1.96	6.34	3.84	N2NE S06 T04S R06W
Pond 2	0.83	12	4.98	2.23	7.21	4.71	W2NENE S06 T04S R06W
Pond 3	0.53	12	3.18	1.42	4.6	2.1	SWNENE S06 T04S R06W
Pond 4	0.55	12	3.3	1.48	4.78	1.48	SESESE S31 T03S R06W
Pond 5	0.51	12	3.06	1.37	4.43	4.43	SWSWSW S32 T03S R06W

Applicant is authorized to supply the surface water component of the annual water requirement (16.56 AF) with 41D 100950 00. Applicant is authorized to retire 16.44 acres of irrigation to offset the consumptive use of the places of storage. Applicant is authorized to use 16.56 AF of water for the fishery purpose year-round from January 1st to December 31st. Applicant is authorized to supply the year-round period of use for the fishery purpose with the stored water.

CORRECTED COPY

NOTICE

This Department will provide public notice of this Application and the Department's Preliminary Determination to Grant pursuant to §85-2-307, MCA. The Department will set a deadline for objections to this Application pursuant to §§85-2-307, and -308, MCA. If this Application receives a valid objection, it will proceed to a contested case proceeding pursuant to Title 2 Chapter 4 Part 6, MCA, and §85-2-309, MCA. If this Application receives no valid objection or all valid objections are unconditionally withdrawn, the Department will grant this Application as herein approved. If this Application receives a valid objection(s) and the valid objection(s) are conditionally withdrawn, the Department will consider the proposed condition(s) and grant the Application with such conditions as the Department decides necessary to satisfy the applicable criteria. E.g., §§85-2-310, -312, MCA.

DATED this 16th day of February 2023

/Original signed by Kerri Strasheim/
Kerri Strasheim, Manager
Bozeman Regional Office
Department of Natural Resources
and Conservation

CORRECTED COPY

CERTIFICATE OF SERVICE

This certifies that a true and correct copy of the PRELIMINARY DETERMINATION TO GRANT was served upon all parties listed below on this 16th day of February 2023 by first class United States mail.

MF MANAGEMENT LLC
240 COLVILLE RD
CHARLOTTE, NC 28207-1910

PAPAS LEGACY LLC
% TOM WAGNER
15 CENTRAL PARK W UNIT 4-D
NEW YORK, NY 10023-7709

(Via email)
DMS NATURAL RESOURCES
% DEBORAH STEPHENSON
STEPHENSON@DMSNATURALRESOURCES.COM

Regional Office, (406) 586-3136